

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**



In re application of: Andrei et al.

Attorney Docket No.: IMECP018

Application No.: 10/731,732

Examiner: Not yet assigned

Filed: December 8, 2003

Group: 2811

Title: ALL-METAL THREE-DIMENSIONAL  
CIRCUITS AND MEMORIES

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on May 10, 2004 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed:

Mia Mitchell-Hynes

**INFORMATION DISCLOSURE STATEMENT  
37 CFR §§1.56 AND 1.97(b)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure

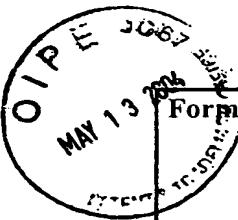
Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. IMECP018).

Respectfully submitted,  
BEYER WEAVER & THOMAS, LLP



Joseph M. Villeneuve  
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Form 1449 (Modified)			
Information Disclosure Statement By Applicant		Atty Docket No. IMECP018 Applicant: Andrei et al.	Application No.: 10/731,732
(Use Several Sheets if Necessary)		Filing Date December 8, 2003	Group 2811

**U.S. Patent Documents**

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A1	5,515,314	05.07.96	Kouhei et al.			
	A2	3,972,786	08.03.76	Ballard			
	A3	4,751,677	06.14.88	Daughton et al.			
	A4	5,173,873	12.22.92	Wu et al.			
	A5	5,565,236	10.15.96	Gambino, et al.			
	A6	5,585,986	12.17.96	Parkin			
	A7	5,587,943	12.24.96	Torok, et al.			
	A8	5,640,343	06.17.97	Gallagher, et al			
	A9	5,640,754	06.24.97	Lazzari, et al.			
	A10	5,650,889	07.22.97	Yamamoto, et al.			
	A11	5,650,958	07.22.97	Gallagher, et al.			
	A12	5,652,445	07.29.97	Johnson			
	A13	5,654,566	08.05.97	Johnson			
	A14	5,793,697	08.11.98	Scheuerlein			
	A15	4,829,476	05.09.89	Dupuis et al.			
	A16	5,661,449	08.26.97	Araki et al.			
	A17	5,903,708	05.11.99	Kano et al.			
	A18	6,292,336	09.18.01	Horng et al.			
	A19	6,278,594	08.21.01	Engel et al.			
	A20	5,686,837	11.11.97	Coehoorn et al.			
	A21	5,561,368	10.01.96	Dovek et al.			
	A22	5,852,574	12.22.98	Naji			
	A23	5,969,978	10.09.99	Prinz			
	A24	6,134,138	10.17.00	Lu et al.			
	A25	6,166,944	12.26.00	Ogino			
	A26	5,051,695	09.24.91	Hunter et al.			
	A27	5,477,143	12.19.95	Wu			
	A28	5,929,636	07.02.99	Torok et al.			
	A29	6,031,273	02.29.00	Torok et al.			
	A30	6,169,292	01.02.01	Yamazaki et al.			
	A31	6,483,740	11.19.02	Spitzer et al.			
	A32	5,989,406	11.23.99	Beetz et al.			
	A33	5,892,708	04.06.99	Pohm, Arthur V.			
Examiner				Date Considered			

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>Form 1449 (Modified)</b>				Atty Docket No. IMECP018	Application No.: 10/731,732
<b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)				Applicant: Andrei et al.	
				Filing Date December 8, 2003	Group 2811

**U.S. Patent Documents**

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A34	2002/0024842	02.28.02	Spitzer et al.			
	A35	4,780,848	10.25.88	Daughton et al.			
	A36	5,477,482	12.19.95	Prinz			
	A37	5,251,170	10.05.93	Daughton et al.			
	A38	5,432,734	07.11.95	Kawano et al.			
	A39	5,442,508	08.15.95	Smith			
	A40	2,911,627	11.03.59	Kilburn et al.			

**Foreign Patent or Published Foreign Patent Application**

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	B1	WO 02/05268 A2	17.01.2002	PCT			X	
	B2	EP 1 132 917 A2	03.03.2000	European				
	B3	WO 02/05470 A2	17.01.2002	WIPO			X	
	B4	WO 02/078100 A1	03.10.02	WIPO			X	
	B5	WO 97/41601	06.11.97	WIPO			X	

**Other Documents**

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C1	Jacquel K. Spong, et al., "Giant Magnetoresistive Spin Valve Bridge Sensor", March 1996, <u>IEEE Transactions on Magnetics</u> , Vol. 32, No. 2, pp. 366-371.
	C2	Mark Johnson, "The All-Metal Spin Transistor", May 1994, <u>IEEE Spectrum</u> , pp. 47-51.
	C3	Mark Johnson, "Bipolar Spin Switch", April 16, 1996, <u>Science</u> , Vol. 260, pp. 320-323
	C4	J.M. Daughton, "Magnetoresistive Memory Technology," July 28 - August 2, 1991, <u>Int'l Workshop on Science and Technology of Thin Films for the 21<sup>st</sup> Century</u> , Vol. 216, pp. 162-168.
	C5	K.T.M. Ranmuthu et al., "New Low Current Memory Modes with Giant Magneto-Resistance Materials," April 13, 1993, <u>Digests of International Magnetics Conference</u> , 2 pages.
	C6	J.L. Brown, "1-Mb Memory Chip Using Giant Magnetoresistive Memory Cells," September 1994, <u>IEEE Transactions on Components, Packaging, and Manufacturing Technology</u> , Part A, Vol. 17, No. 3, pp. 373-379.
Examiner		Date Considered

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### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C7	Torok et al., "Measurement of the Easy-Axis and H <sub>k</sub> Probability Density Functions for Thin Ferromagnetic Films Using the Longitudinal Permeability Hysteresis Loop", <u>Journal of Applied Physics</u> , 33, No. 10, October 1962, pp. 3037-3041.
	C8	Lenssen, et al, "Expectations of MRAM in Comparison With Other Non-Volatile Memory Technologies", Phillips Research Laboratories, pp. 26-30
	C9	Torok, et al, "Longitudinal Permeability in Thin Permalloy Films", <u>Journal of Applied Physics</u> , 34, No.4, (Part 2), April 1963, pp. 1064-1066
	C10	Paul a. Packan, "Pushing The Limits", Sept. 24, 1999. science Mag, Vol. 285, pp. 2079-2081
	C11	Pratt, W.P., et al., "Perpendicular Giant Magnetoresistances of Ag/Co Multilayers", <u>Physical Review Letters</u> , 66 (23): 3060-3063 (June 1991).
	C12	Parkin, S.S.P, et al., "Oscillatory Magnetic Exchange Coupling through Thin Copper Layers", <u>Physical Review Letters</u> , 66(16): 2152-2155 (April 1991).
	C13	Jones, K., "Texas Instruments Plans Large Expansion", <u>The New York Times</u> (August 20, 1993).
	C14	Callaby, D.R. et al., Solid State Memory Study Final Report, Technical Report No. RE-0013, National Media Lab, St. Paul, MN (February 1994).
	C15	National Media Laboratory Spring Review on Solid-State Memory Technologies, Proc. 1994 Spring Conference on Solid-State Memory Technologies, Pasadena, CA, (May 23-25, 1994), pp. 3-8, 97, 121, 123-133.
	C16	Harrison, R.W., "Laser Scanning Surface Profilomete", <u>IBM Technical Disclosure Bulletin</u> , 13(3): 789-790 (August 1970).
	C17	Hylton, T.L., et al, "Giant Magnetoresistance at Low Fields in Discontinuous NiFe-Ag Multilayer Thin Films", <u>Science</u> , 261:1021-1024 (August 1993)
	C18	Xiao, et al., "Giant Magnetoresistance in Nonmultilayer Magnetic Systems", <u>Physical Review Letters</u> , Vol. 68, No. 25, 22 June 1992, pp. 3749-3752.
	C19	Zhang, S., "Theory of Giant Magnetoresistance in Magnetic Granular Films", <u>Appl. Phys. Lett.</u> , 61(15): 1855-1857 (October 1992).
Examiner		Date Considered

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